

Remarks

Review of telephonic interview of June 10, 2004

On June 10, 2004, Howard M. Ellis, Attorney of Record, and Robert C. Atkinson, who provided technical assistance on behalf of Applicant, conducted a telephonic interview with Mr. Gordon J. Stock, Jr., Examiner for the above-identified application. At the outset, Applicant would like to thank the Examiner for his generous allowance of time to discuss the merits of the case, grounds of rejection and various cited references relied on in the rejection. Applicant believes the interview was a productive and useful dialogue in resolution of the Examiner's concerns regarding patentability.

Examiner Stock indicated United States Patent No. 6,180,415 (*Schultz et al.*) was the primary basis of his rejections, and as such was the principal focus of the interview. The interview provided a better mutual understanding of *Schultz et al.*'s disclosure including:

1. Although recording a detection image, *i.e.*, spectral emission characteristics of plasmon resonant particles (PREs) is taught, it was pointed out that the patent is silent on teaching or suggesting, as to render obvious, the concept of recording an image of the structure to which the PREs are bound.
2. In view of the Examiner's acknowledged absence of a teaching of recording an image of the structure, it follows that the patent is silent regarding the combination of a detection image and at least one microscopic image for subsequent evaluation by digital image processing means, according to Applicant's claims.

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After reaching this mutual understanding of the *Shultz et al.*, Examiner Stock conceded the deficiencies of this primary reference, and its use as a basis for rejection of the claims.

Mr. Stock further indicated that United States Patent No. 6,214,560 (*Yguerabide et al.*) was a reference of concern. Applicant agreed to review the patent in greater detail and would outline why it too fails to make out a *prima facie* case of obviousness. This discussion of *Yguerabide et al.* is provided below.

At the conclusion of the interview, Examiner Stock indicated that provided Applicant's evaluation of *Yguerabide et al.* was accurate, he felt satisfied that his concerns regarding patentability would be removed. Hence, he expected to report out this case favorably for Applicant to his supervisor.

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The Rejection of Claims 32-45, 47-48 and 54-56 Under 35 U.S.C. § 103(a)

Claims 32-45, 47-48 and 54-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Schultz et al.* in view of *Yguerabide et al.* further in view of United States Patent No. 5,018,209 (*Bacus*) and United States Patent No. 5,592,571 (*Peters*). Applicant respectfully traverses this rejection and requests reconsideration for the following reasons.

As concluded during the above-mentioned interview, *Schultz et al.* do not disclose recording an image of detected particles and at least one microscopic image of the structures to which said particles are bound. *Schultz et al.* merely teach recording an image or images of PREs, *i.e.*, detection particles. As expressly taught by *Schultz et al.*:

“It will be appreciated that the detector serves to detect a spectral emission characteristic of individual PREs and other light-scattering entities in the field, when the field is illuminated by the light source, simultaneously at each of the regions in the field corresponding to array pixels.”
(*Schultz et al.*, Col. 18, Lines 15-19).

Further description of image recording is found in the definitions section of the specification. In this section, *Schultz et al.* expressly teaches:

“A ‘spectral emission characteristic’ refers to a spectral scattering characteristic of a PRE and ‘emission’, as applied to PREs, means scattered light produced or excited by plasmon resonance.”
(*Schultz et al.*, Col. 8, Lines 43-47).

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Additionally:

“A ‘computer image of the positions and values of the emission spectral characteristic’ refers to a matrix which associates each region in a field being interrogated with one or more spectral emission characteristic values or signature measured for a light-scattering entity in the region.”
(*Schultz et al.*, Col. 8, Lines 55-64).

When viewing *Schultz et al.* in light of the aforementioned definitions, it follows that only recording spectral emission characteristics is taught, *i.e.*, recording a detection image. That is, the only image recording taught by *Schultz et al.* is the capture of either computer or photographic images of spectral emission characteristics of PREs without recording an image of the structure upon which the PREs are bound. Therefore, *Schultz et al.* is lacking an essential element of Applicant’s claimed invention, *i.e.*, the recording of at least one microscopic image of the structures.

As agreed during the above-mentioned telephonic interview, Applicant is now furnishing an analysis of the *Yguerabide et al.* disclosure. The teachings of *Yguerabide et al.* have the same deficiencies as those of *Schultz et al.* In fact, in this instance, the patent teaches away from Applicant’s invention. “The method and associated apparatus are designed to maximize detection of only scattered light from the particles and thus is many times more sensitive than use of fluorophores, or the use of such particles in methods described above.” (*Yguerabide et al.*, Col. 10, Lines 12-16). By optimizing their system for the maximum detection of only scattered light, *Yguerabide et al.* sacrifice the capability to record useable images of types other than scattered light. Hence, the method and apparatus would not be appropriate to record a

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microscopic image of the structures in addition to recording an image of the detection particles for which the invention is optimized. As in *Schultz et al.*, *Yguerabide et al.* is lacking an essential element, *i.e.*, the recording of at least one microscopic image of the structures to which the detection particles are bound.

With respect to the secondary references relied on, *Bacus* and *Peters* are directed at digital processing of microscopic images. However, neither patent teaches the combination of a detection image and at least one microscopic image of the structures, and as such do not render Claim 32 obvious.

In order to establish a *prima facie* case of obviousness under Section 103, the references alone or in combination must teach all the elements of rejected Claim 32, which they do not. Furthermore, there is no motivation to combine *Schultz et al.* with *Yguerabide et al.*, *Bacus* and *Peters*, or change what is taught by these references. Therefore, it follows that Claim 32 is non-obvious in view of *Schultz et al.* and *Yguerabide et al.*, and further in view of *Peters* and *Bacus*.

Furthermore, Claims 33-45, 47-48 and 54-56 are also non-obvious in view of *Schultz et al.* and *Yguerabide et al.*, and further in view of *Peters* and *Bacus*, due to their dependency from Claim 32.

Withdrawal of the rejection of Claims 32-45, 47-48 and 54-56 for reasons of obviousness is courteously requested.

The Rejection of Claim 46 Under 35 U.S.C. § 103(a)

Claim 46 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Schultz et al.* in view of *Yguerabide et al.*, further in view of *Bacus* and *Peters*, and further in view of United

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States Patent No. 4,169,676 (*Kaiser*). Applicant respectfully traverses this rejection and requests reconsideration for the following reasons.

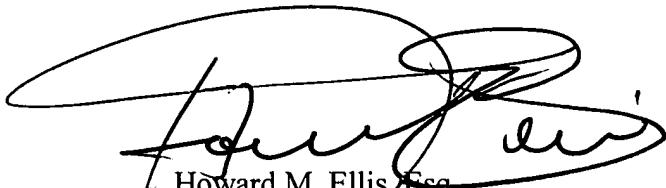
As Examiner has indicated, dependent Claim 46 contains all of the limitations established in independent Claim 32, due to its dependency therefrom. As previously mentioned, Claim 32 is non-obvious in view of *Schultz et al.* and *Yguerabide et al.*, and further in view of *Peters* and *Bacus*. Since *Kaiser* does not teach the missing element, *i.e.*, the combination of a detection image and at least one microscopic image, for all the above-mentioned reasons and due to its dependency from Claim 32, it follows that Claim 46 is also non-obvious in view of *Schultz et al.* and *Yguerabide et al.*, and further in view of *Peters*, *Bacus* and *Kaiser*. Accordingly, withdrawal of the rejection of Claim 46 under 35 U.S.C. § 103(a) would be entirely appropriate.

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Conclusion

For all the reasons outlined above, Applicant respectfully submits that the claims are patentable over the cited references and in condition for allowance, which action is courteously requested. However, in the event of any remaining issues, it is courteously requested that Examiner Stock contact the undersigned attorney of record.

Respectfully submitted,



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